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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
NGUYEN, STEVEN H D	
ART UNIT	PAPER NUMBER
2616	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/036,135	SHIN ET AL.	
	Examiner	Art Unit	
	Steven HD Nguyen	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 November 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/21/06 has been entered.

2. All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 16 and 19-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Li (USP 5757771).

Regarding claim 16, Li discloses a method in a communications device (Fig 5b) for transmitting packets, the method comprising receiving packets in an order, each packet being a first packet type or a second packet type (Col. 5, lines 54-67, the switch stores each type of packets in each associated queue), transmitting the received packets in an order in which whether the packets are a first packet type or a second packet type (Col. 3, lines 30-44), unless the transmitting of a packet in the different order would delay the transmitting of a packet more than a certain amount of time (Fig 3, 302, 304, 310 and 308; See col. 9, line 13 to col. 12, line 61 or col. 4, lines 30-44).

Regarding claim 19, Li discloses the selecting includes applying a selection algorithm (priority-based selection) that gives preference to selecting control packets over data packets (col. 4, lines 30-44).

Regarding claims 20-22, Li discloses the communications device has multiple ports (Fig 5b, Ref 508 and 510), the packets are received via a single port (Fig 5b, Ref 508); received packets to be transmitted via the same port (Fig. 5B, Ref 510) and the packets are received via different ports (Fig 5B, Ref 508).

Regarding claim 23, Li discloses the communications device is a switch (Fig 5b) that connects host devices to data storage devices (Fig 5B which used to coupled host and storage).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-8, 12, 14-23, 25-30, 32 and 34-35 rejected under 35 U.S.C. 103(a) as being unpatentable over Burnett (USP 5703875) in view of Li (USP 5757771).

Regarding claim 1, Burnett discloses method in a communications device for transmitting packets (Fig 2) comprising receiving packets, each packet being a control packet or a data packet (col. 2, lines 1-9); storing the received packets in memory of the communications device (col. 2, lines 19-29); stored packets include a control packet and data packet (col. 2, lines 30-39); retrieving the selected packet from memory of the communications device and transmitting the retrieved packet (col. 2, lines 40-44). However, Burnett fails to disclose when the stored packets include a control packet and a data packet, determining whether the data packet has been delayed more than a certain amount of time; when it is determined that the data packet has been delayed more than the certain amount of time, selecting the data packet; and when it is determined that the data packet has not been delayed more than the certain amount of time, selecting the control packet. In the same field of endeavor, Li discloses when the stored packets include a control packet and a data packet (Fig 5B, Ref 504), determining whether transmitting of the control

packet has been delayed the transmitting of the data packet more than a certain amount of time (Fig 3, ref 308); when it is determined that the data packet has been delayed more than the certain amount of time, selecting the data packet (Fig 3, Ref 302-310); and when it is determined that the data packet has not been delayed more than the certain amount of time, selecting the control packet (Fig 3, Ref 302 and 304; See col. 9, line 13 to col. 12, line 61).

Since, a method and system for transmitting a low priority packet before the high priority packet is well known and expected in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to apply a method and system for transmitting a low priority packet before high priority packet if the waiting time of the low priority packet is exceeds a delay threshold as disclosed by Li into the method and system of Burnett. The motivation would have been to provide a fairness service by providing a low priority packet with a minimum bandwidth so that the high priority packet is not continuously preempted the low priority packet.

Regarding claims 25-26, Burnett disclose a communications device (Fig 2) comprising a receive component that receives packets and stores the received packets in the memory (Fig 2, Ref 12 and 13), each packet being a control packet or a data packet, wherein control packets are stored in a control packet queue (Fig 2, Ref 12) and data packets are stored in a data packet queue (Fig 2, Ref 13); and a transmit component that retrieves the packets from the memory that transmits the retrieved packets in order of retrieval (col. 2, lines 19-44). However, Burnett fails to disclose the retrieving is associated with a selection algorithm that if each queue contains a packet the selection algorithm selects a control packet for retrieval unless a certain condition, when the selection of a control packet would delay the transmitting of a data packet more than a

certain amount of time, is satisfied in which case the selection algorithm selects a data packet for retrieval. In the same field of endeavor, Li discloses the retrieving is associated with a selection algorithm (Fig 3) that if each queue contains a packet the selection algorithm selects a control packet (Fig 3, ref 302) for retrieval unless a certain condition, when the selection of a control packet would delay the transmitting of a data packet more than a certain amount of time (Fig 308), is satisfied in which case the selection algorithm selects a data packet for retrieval (See col. 9, line 13 to col. 12, line 61).

Since, a method and system for transmitting a low priority packet before the high priority packet is well known and expected in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to apply a method and system for transmitting a low priority packet before high priority packet if the waiting time of the low priority packet is exceeds a delay threshold as disclosed by Li into the method and system of Burnett. The motivation would have been to provide a fairness service by providing a low priority packet with a minimum bandwidth so that the high priority packet is not continuously preempted the low priority packet.

Regarding claim 2, Burnett discloses the memory of the communications device includes a portion for storing data packets (Fig 2, ref 13) and separate portion for storing control packets (Fig 2, ref 12).

Regarding claims 3 and 27, Burnett discloses each portion of the memory is a FIFO buffer (Fig 2).

Regarding claims 4 and 28, Burnett discloses the communications device has multiple ports and the selecting of the stored packet is performed for packets to be transmitted via the same port (Col. 2, lines 19-38).

Regarding claim 5, Burnett discloses the packets with a packet type of control include command packets (col. 1, lines 18-22).

Regarding claim 6, Burnett discloses the packets with a packet type of control include status packets (col. 1, lines 18-22).

Regarding claim 7, Burnett discloses the packets with a packet type of control include message packets (Fig 2, Ref 12, Col. 2, lines 55-60).

Regarding claims 8, 29 and 30, Burnett further discloses while transmitting a data packet, receiving a control packet; interrupting the transmission of the data packet; transmitting the control packet; and after the control packet is transmitted, continuing with the interrupted transmission of the data packet (col. 2, line 61 to col. 3, line 17).

Regarding claims 12 and 32, Burnett discloses the communications device is a switch that connects host devices to data store devices (fig. 1 and col. 1, line 66 - col. 2, line 9).

Regarding claims 14 and 34, Burnett discloses the selecting includes selecting control packets before selecting data packets (col. 1, lines 43-48).

Regarding claims 15 and 35, Burnett discloses the selecting includes applying a selection algorithm (priority-based selection) that gives preference to selecting control packets over data packets (col. 1, lines 36-51).

Regarding claim 16, Burnett discloses a method in a communications device for transmitting packets, the method comprising receiving packets in an order, each packet being a

first packet type or a second packet type (col. 1, lines 36-42), transmitting the received packets in an order in which whether the packets are a first packet type or a second packet type (col. 1, lines 36-51 and col. 2, lines 19-45). However, Burnett fails to disclose unless the transmitting of a packet in the different order would delay the transmitting of a packet more than a certain amount of time. In the same field of endeavor, Li discloses unless the transmitting of a packet in the different order would delay the transmitting of a packet more than a certain amount of time (Fig 3, 302, 304, 310 and 308; See col. 9, line 13 to col. 12, line 61).

Since, a method and system for transmitting a low priority packet before the high priority packet is well known and expected in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to apply a method and system for transmitting a low priority packet before high priority packet if the waiting time of the low priority packet is exceeds a delay threshold as disclosed by Li into the method and system of Burnett. The motivation would have been to provide a fairness service by providing a low priority packet with a minimum bandwidth so that the high priority packet is not continuously preempted the low priority packet.

Regarding claims 17-18, Burnett discloses the first packet type is a data packet and the second packet type is a control packet and control packets are transmitted before data packets (col. 1, lines 36-51).

Regarding claim 19, Burnett discloses the selecting includes applying a selection algorithm (priority-based selection) that gives preference to selecting control packets over data packets (col. 1, lines 36-51).

Regarding claim 23, Burnett discloses the communications device is a switch that

connects host devices to data storage devices (Fig. 1 and col. 1, line 66 - col. 2, line 9).

Regarding claims 20-21, Burnett discloses the communications device has multiple ports (Fig 1), the packets are received via a single port (Fig. 1, Ref 23); and the selecting of the stored packets is performed for packets to be transmitted via the same port (Fig. 1, ref 23).

Regarding claim 22, Burnett discloses the packets are received via different ports (Fig 1, ref 23).

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Burnett and Li in view of Ellis (USP 5497371).

Regarding claim 9, Burnett and Li fail to disclose each packet has a header and the continuing includes transmitting a header corresponding to the interrupted portion of the data packet. in the same field of endeavor, Ellis discloses continuing includes transmitting a header corresponding to the interrupted portion of the data packet (col. 2, line 55-65).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to apply a method and system for attaching a header to the remaining part of the packet as disclosed by Ellis into the system and method of Burnett and Li. The motivation would have been to protect the interrupted packet.

8. Claims 13, 24 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burnett/Li as applied to claims 1, 16 and 25 above, and further in view of Howe (USP 20030189922).

Regarding claim 13, 24 and 33, Burnett/Li fail(s) to disclose the communications device is part of a storage area network. However, Howe teaches a communications device (Fig. 9, an integrated layer one switch having similar functions as disclosed in claim 1) is part of a storage

area network (par. 0077). Therefore, as was taught by Howe, it would have been obvious to have the communications device of Burnett/Li configured as part of a storage area network in order to provide a variety of applications for the packet-based communications network using the method of packet ordering based on the packet type.

9. Claims 10-11 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burnett and Li as applied to claims 1 and 25 above, and further in view of Cidon (USP 5343473).

Regarding claim 10, Burnet and Li fail to disclose continuing transmitting includes transmitting the remainder of the data packet without transmitting a new header. However, Cidon discloses continuation of a data packet transmission after an interruption of a control packet can be done by transmitting the remainder of the data packet without a new header (Fig 2, Ref 20h discloses the remainder of packet is transmitting without header).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to apply a step of continuing transmitting of the remainder of the data packet without transmitting a new header as disclosed by Cidon into Li and Burnet's method since an advantage of doing so is to maintain the integrity of data packets before and after the interruption made by the control packet.

Regarding claims 11 and 31, Burnett discloses the interrupting of the transmission includes transmitting a control message to preempt any data message currently transmitted and continuing the interrupted transmission by reverting the crossbar state to resume data message (col. 3, lines 7-17). Burnett and Li differ from the claimed invention in that he does not teach transmitting a preempt primitive and a continue primitive before and after the interruption, respectively. However, Cidon discloses a method and system for transmitting a preempt

primitive and a continue primitive before and after the interruption, respectively (Fig 2, Ref 20C, preempt on and 20G is preempt off and the remainder of packet 20b will be transmitting, Col. 5, lines 56 to col. 6, lines 8).

Since, Burnett suggests the use of start and end of message and preemption indicator. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to apply a preempt primitive and a continue primitive before and after the interruption, respectively as disclosed by Cidon into the system and method of Burnett and Li in order to inform the receiving side of the start and ending of the interruption prioritized by the control packet.

10. Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li (USP 5757771).

Li fails to disclose the type of packet is one of control or data packet wherein control packet is preferred over data packet when transmitting via a switch. However, the examiner take an official notice that a method and system comprising control packet and data packet wherein control packet is transmitted before data packet is well-known and expected in the art at the time of invention was made. Therefore, it would have been obvious to one of ordinary skill in the art to apply this method into the teaching of Li. The motivation would have been to maintain the quality of the system.

Response to Arguments

11. Applicant's arguments filed 12/21/06 have been fully considered but they are not persuasive.

In response to page 11, the applicant states that Li fails to disclose a method and system for transmitting packets in an order different than an order of how the packets such as a first packet type and a second packet type are received unless transmitting in a different order would delay the transmitting of a packet more than a certain amount of time. In reply, Li discloses a method and system which includes a plurality of data queues wherein each data queue associated with one of output priorities and delay threshold "a certain amount of time" for storing the packet such as first and second packet type "read on traffic type, service type such as voice, data, video etc". A queue manager will use the delay threshold to determine if forwarding a lower priority packet "control packet," would delay the transmitting of the data packet "higher priority", for a delay threshold (See col. 9, lines 12-46, Table 2 and Figs 3-4 and the set forth of the office action).

12. In response to applicant's argument of pages 12-14 that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

13. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Burrnet discloses a communication device includes a plurality of queues for storing the packets wherein each queue associated with a packet type and priority and a queue manager will select a control packet for transmitting before transmitting the data packet from the queues. Li discloses a includes a plurality of queues for storing the packets of different types wherein each queue associated with a packet of different type, delay threshold and priority and a queue manager will use the delay threshold to determine if forwarding a lower priority packet type would delay the transmitting of the higher priority packet type for a delay threshold. Since, a method and system for transmitting a low priority packet before the high priority packet is well known and expected in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to apply a method and system for transmitting a low priority packet type before high priority packet type if the waiting time of the low priority packet is exceeds a delay threshold as disclosed by Li into the method and system of Burnett. The motivation would have been to provide a fairness service by providing a low priority packet type with a minimum bandwidth so that the high priority packet type is not continuously preempted the low priority packet or starving the lower priority packet type.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven HD Nguyen whose telephone number is (571) 272-3159. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on (571) 272-3134. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Steven HD Nguyen
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Art Unit 2616